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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/657,904	09/09/2003	Robert Joseph McCarty JR.	COM004-C1	5642
25962	7590	10/17/2006		
SLATER & MATSIL, L.L.P. 17950 PRESTON RD, SUITE 1000 DALLAS, TX 75252-5793				
			EXAMINER PATHAK, SUDHANSHU C	
			ART UNIT 2611	PAPER NUMBER

DATE MAILED: 10/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/657,904

Applicant(s)

MCCARTY, ROBERT JOSEPH

Examiner

Sudhanshu C. Pathak

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on November 14<sup>th</sup>, 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 24-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 24-29 is/are allowed.
- 6) ☒ Claim(s) 30 and 32-34 is/are rejected.
- 7) ☒ Claim(s) 31 and 35 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on September 9<sup>th</sup>, 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

1. Claims 24-to-35 are pending in the application.
2. Claims 1-23 have been canceled.

(The application is examined as per the preliminary amendment dated Nov. 14<sup>th</sup>, 2003).

### ***Specification***

3. The specification is objected to as failing to comply with the written description requirement. The subject matter was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The Specification on (Page 3, lines 5-7) discloses that a "...raised cosine filter is continuous at the stop band and the first derivative is continuous...", furthermore the specification on (Page 10, lines 11-12 & 16-17) discloses "...when the square root of a raised cosine filter is taken, the first derivative is discontinuous...". However, comparing the equations in the specification on Pages 9 & 10 i.e.  $NF_{\text{RaisedCosine}}(f)$  &  $NF_{\text{Sqrt-RC}}(f)$  discloses only that the amplitude changes in the equations, therefore, it is not clear how the first derivative becomes discontinuous in the square root cosine and not in the raised cosine.

### ***Double Patenting***

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application

claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claim 30 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 9 of U.S. Patent No. 6,628,728.

Although the conflicting claims are not identical, they are not patentably distinct from each other.

In regards to Claim 30, Claim 9 of the US patent (6,628,728) discloses a digital communications unit (Claim 9, line 1) comprising: a signal source (Claim 9, line 2); and a Nyquist filter coupled to the signal source, the filter having a characteristic of a square root of a Nyquist function in the frequency domain, the filter further being characterized in that the square root of the frequency domain response has a first derivative that is continuous at all points (Claim 9, line 7). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that a Nyquist filter having a frequency domain response that satisfies the Nyquist criteria and that the square root of the response has a first derivative that is continuous at all points is the same as a Nyquist filter having a characteristic of a square root of a

Nyquist function wherein the frequency domain of the response has a first derivative that is continuous at all points, thus satisfying the limitations of the claim.

6. Claims 32-33 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 9 of U.S. Patent No. 6,628,728 in view of Applicant Admitted Prior Art (AAPA). Although the conflicting claims are not identical, they are not patentably distinct from each other.

In regards to Claim 32, Claim 9 of the US patent (6,628,728) discloses a digital communications unit as described above. However, Claim 9 does not disclose the signal source comprises an analog-to-digital converter (ADC).

The AAPA discloses a signal source comprising an analog-to-digital converter (ADC) (Fig. 2, elements 102, 108 & Specification, Page 6, lines 8-18). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that AAPA teaches implementing an ADC in a signal source so as to digitize the source signal so as to be able to perform digital signal processing (filtering) on the signal so as to be able to transmit the signal with minimizing the effect of interference on the signal.

In regards to Claim 33, Claim 9 of the US patent (6,628,728) discloses a digital communications unit as described above. However, Claim 9 does not disclose the signal source comprises a receiver.

The AAPA discloses the signal to be such as voice or video (Specification, Page 6, lines 9-11) {Interpretation: The AAPA discloses the applications, which may be

transmitted, therefore the signal source comprises so as to receive the information to be transmitted and perform appropriate processing. For example, in transmitting voice (information), the voice is to be received by the source and converted to an analog electrical signal for transmission}. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that the AAPA teaches the source comprise a receiver so as to receive the information to be transmitted thus satisfying the limitation of the claim.

7. Claim 34 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 21 of U.S. Patent No. 6,628,728.

Although the conflicting claims are not identical, they are not patentably distinct from each other.

In regards to Claim 34, Claim 21 of the US patent (6,628,728) discloses a digital signal processor (Claim 21, line 1) comprising: a memory device storing a look-up table for an impulse response for a filter, the filter having a characteristic of a square root of a Nyquist function in the frequency domain, the filter further being characterized in that the square root of the frequency domain response has a first derivative that is continuous at all points (Claim 21, lines 2-7); and a digital signal processor core, wherein the memory device is integrated on the same integrated circuit as a digital signal processor core (Claim 21, lines 8-10). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that a Nyquist filter having a frequency domain response that satisfies the Nyquist criteria and that the square root of the response has a first derivative that is continuous at all

points is the same as a Nyquist filter having a characteristic of a square root of a Nyquist function wherein the frequency domain of the response has a first derivative that is continuous at all points, thus satisfying the limitations of the claim.

***Allowable Subject Matter***

8. Claims 24-29 are allowed.
9. Claims 24-29 are allowable over the prior art of record because the cited references do not contain the specified limitation of a communication system comprising: a first communication device including, a digital signal source; a quadrature amplitude modulation unit coupled to the digital signal source; a first pulse shaping filter coupled to the quadrature amplitude modulation unit, the first pulse shaping filter being characterized in that the frequency domain response meets the Nyquist criteria and that the square root of the frequency domain response has a first derivative that is continuous at all points, the pulse shaping filter having an impulse response corresponding to the square root of the frequency domain response; a modulator coupled to receive a signal from the pulse shaping filter; and a transmitter coupled to the modulator; and a second communication device including a receiver; a demodulator coupled to the receiver; a second pulse shaping filter, the second pulse shaping filter being matched to the first pulse shaping filter and being characterized in that the frequency domain response meets the Nyquist criteria and that the square root of the frequency domain response has a first derivative that is continuous at all points, the pulse shaping filter having an impulse response corresponding to the

square root of the frequency domain response; a quadrature amplitude demodulation unit coupled to the second pulse shaping filter; and a signal output coupled to the quadrature amplitude demodulation unit.

10. Claims 31 & 35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

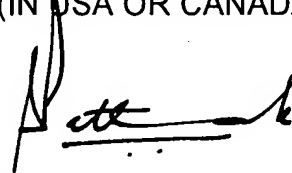
11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure, it is recommended to the applicant to amend all the claims so as to be patentable over the cited prior art of record. A detailed list of pertinent references is included with this Office Action (See Attached "Notice of References Cited" (PTO-892)).
12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sudhanshu C. Pathak whose telephone number is (571)-272-3038. The examiner can normally be reached on M-F: 9am-6pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh M. Fan can be reached on (571)-272-3042.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Sudhanshu C. Pathak  
Examiner  
Art Unit 2611